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09/485,734	02/14/2000	FRANK PUTTKAMMER	990350	2153

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EXAMINER	
CAPUTO, LISA M	
ART UNIT	PAPER NUMBER
2876	

DATE MAILED: 01/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/485,734	PUTTKAMMER ET AL.	
	Examiner	Art Unit	
	Lisa M Caputo	2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

On page 15, line 28 to page 16, line 31 the reference numbers appear in the specification but not in the drawing: the entire Figure 15 and reference numbers 26, 33, 34, 35, 36, 37, 38, 39, 40.

Figure 9 is missing reference number 4 label for the capacitively operating scanner.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

On page 13, line 16 the transmitting electrodes which appear in Figures 1-5 and 7 are mentioned without their appropriate reference number five (5).

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

4. The disclosure is objected to because of the following informalities:

In the Specification:

Regarding page 9, line 28: Replace "identify" with --identified--.

Regarding page 14, line 28: Replace "top" with --to--.

Regarding page 14, line 24 to page 16 line 31: Many reference numbers are mentioned in the specification and do not appear in the drawings, particularly an entire Figure 15. Please replace this text with appropriate description of Figures 11-14.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18, line 12 uses the term "smaller", while claim 18, line 17 uses the term "very small" without reference to exactly what the range of "small" is.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-3, 5, 6, and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schattschneider et al. (U.S. Patent No.5,949,060, from hereinafter "Schattschneider").

Schattschneider teaches a high security capacitive card system which discloses an interface module which a contact face having a plurality of first and second electrodes arranged in a pattern that alternates and repeats in both the horizontal and vertical direction. When an orthogonal matrix of rectangular electrodes is used, the arrangement could be described as a "checkerboard pattern" (see col 2, lines 62-67). The system further includes a data card having a similar alternating "checkerboard pattern" of first and second conductive electrodes formed on a non-conductive substrate. The electrode pattern on the card matches the electrode pattern on the contact face of the interface module. A plurality of conductive links are interconnected between selected adjacent first and second electrodes on the card (see col 3, lines 15-21). The checkerboard pattern of electrodes on the subject cards permits each first electrode to be connected to two or more second electrodes (see col 3, lines 39-40). A cros section of the data card 20 consists of a very thing metal film 72 sandwiched

between a thin, optically transparent protective layer 71 and a thicker carrier substrate 73. The metal film 72 is electrically conductive and only a few hundred angstroms thick. A high precision computer controlled laser-etching system can be used to create both the electrode and link patterns on the card (see Figure 7, col 8, lines 13-21). A number of different electrode shapes and geometric patterns can be used to implement the concepts of the subject invention (see col 3, lines 59-61).

Regarding claims 1 and 2, Schattschneider fails to teach that the smallest electrically conductive and metallized structures are less than or equal to 5 mm.

Schattschneider does teach the thickness of the metal film as a few hundred angstroms thick, which is smaller than the 5 mm requirement for the size of the structures.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to craft the electrically conductive and metallized structures on the same order, and even, smaller than the thickness of the metal because the structures must fit operatively well on the medium, whether a banknote or card and by making them small and proportionate they will be able to work well on the preferred embodiment.

Regarding claim 3, Schattschneider fails to teach that different electrically conductive structures possess different electrical conductivities.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to infer that the different electrically conductive structures as disclosed by the checkerboard pattern of Schattschneider would possess different

electrical conductivities because the conductivity is a rate of how energy is transferred and with the checkerboard pattern, there are different structures depending on which horizontal or vertical bar crosses each other, hence, the conductivities will change as a result of different orientation, distance to travel, and overall feasibility of transfer of the element.

Regarding claim 5, Schattschneider fails to specifically teach that the width of an electrically conductive layer of constant electric conductivity corresponds to the width of at least two electrodes of an examination apparatus.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to infer that since a plurality of conductive links are interconnected between selected adjacent first and second electrodes on the card, that the width of these conductive links does indeed encompass the width of at least two electrodes.

Regarding claim 6, Schattschneider fails to teach that the distance between two electrically conductive structures of the same and/or different electrically conductivity is at least 0.1 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a distance that is on the same order as the thickness of the conductivities so that the security system works properly. However, 0.1 mm is simply a design choice which would not effect the functionality of the invention.

Regarding claim 8, Schattschneider further teaches that in operation, the card is juxtaposed with respect to the contact face of the interface module so that the matching electrodes are pressed tightly against each other. In order to read data from the card, a

low-power signal is applied to a selected pair of interface module electrodes which capacitively couple the signal to the matching pair of card electrodes. By analyzing the effect of the signal caused by passing the signal through the link, the impedance of the link connecting the card's electrode pair is determined (see col 3, lines 24-32).

Schattschneider fails to teach that the width of the capacitively coupled interface is larger than the largest width of a document.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the width of the capacitively coupled interface larger than the width of the document so that the entire document can be scanned effectively (i.e. all parts are scanned at the same time in the same scanning movement). It is well known in the art that in order to scan something efficiently, it is favorable to have a continuous scan, rather than one that is done in separate intervals and meshed together.

Regarding claim 9, Schattschneider teaches that unlike cards found in prior art, the checkerboard pattern of electrodes on the subject cards permits each first electrode to be connected to two or more second electrodes.

Schattschneider further discloses that the subject invention includes an interface module 10 which functions to read and write to a card in a highly secure fashion. The interface module includes a microcontroller 11 which communicates with an external master microprocessor though communication interface. The communication interface also provides conduits for all of the power supply requirements of the circuitry on the interface module. The microcontroller 11 controls the functioning of the signal generator

and conditioner 12 and the switching network 13 (see Figure 1, col 5, lines 18-27). The read signal is initiated at oscillator 121, and travels though driver 123, interface 126, switching network 130, and contact face 14. The read signal is then capacitively coupled out to a data card, passes though the selected link, and returns back though contact face 14, switching network 131, interface 127, read amplifier 128, and detector 129. Finally, the detected read signal is routed to microcontroller 11 (see Figure 2, col 5, lines 43-51). Interfaces 126 and 127 are connected to switching networks 130 and 131 respectively. The switching networks connect the impedance-matched signal lines to electrode pairs on the contact plate based on the microcontroller-selected values present on the address lines. They are connected in a unique way that allows the microcontroller to access links on the card that exist in the interface between any orthogonally adjacent pair of card electrodes. The networks are constructed using a multiplicity of 74HC4051s. The "4051" is a cmos integrated circuit that functions as an eight channel analog multiplexer/demultiplexer (see Figure 2, col 6, lines 50-61). Detector 129 produces a dc voltage that is proportional to the ac voltage of the conditioned read signal. This dc voltage is sampled and digitized by an analog-to-digital converter which is built into the microcontroller 11. The value of the digitized signal allows the microcontroller to evaluate the impedance state of the link being read (see Figure 2, col 6, lines 44-49). This detector is analogous to a demodulator, which digitizes signals. The subsequent value allows for comparison to other values, which is accomplished by a comparator. In addition Schattschneider discloses the read amplifier 128 provides signal conditioning to the read signal by buffering, filtering, and amplifying

it. The buffer ensures that interface 127 is appropriately loaded. A bandpass filter in the read amplifier 128 reduces the levels of any out-of-band signals and thereby improves the signal-to-noise ratio (see Figure 2, col 6, lines 35-41).

Regarding claim 10, Schattschneider fails to teach a current source and an oscillator for the multiplexer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a current source to drive the circuit as well as an oscillator to drive the multiplexer because it is well known in the art that in order to drive a circuit, power must be applied, whether in the form of a voltage and/or current and in order to drive a chip that functions as a multiplexer, an oscillator must be used.

Regarding claim 11, Schattschneider fails to teach a specific comparator in the electronic evaluation circuit, as well as filters with the microprocessor.

Schattschneider does teach the comparison of signals after digitizing, which is well known in the art to be done with an element such as a comparator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a physical comparator element to the system of Schattschneider because the comparator will compactly compare (usually in the form of a simple operational amplifier) the different levels of voltages that are inputted.

Regarding claim 12, Schattschneider fails to teach that the distance between two transmitting electrodes is smaller than 0.5 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a distance that is on the same order as the thickness of the

conductivities so that the security system works properly. However, 0.5 mm is simply a design choice which would not effect the functionality of the invention. In addition, Schattschneider teaches that there are many ways to position the links on a 16x8 matrix of electrodes. What is also demonstrated is the fact that there are an exceedingly large number of ways of arranging links between orthogonally adjacent electrodes in a relatively small matrix of electrodes (see Figures 5 and 6, col 7, lines 60-65), which reiterates how the links can be of different lengths and still function properly.

Regarding claim 13, Schattschneider fails to teach that the distance between a transmitting electrode and a receiving electrode is at least 0.5 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a distance that is on the same order as the thickness of the conductivities so that the security system works properly. However, 0.5 mm is simply a design choice which would not effect the functionality of the invention. In addition, Schattschneider teaches that there are many ways to position the links on a 16x8 matrix of electrodes. What is also demonstrated is the fact that there are an exceedingly large number of ways of arranging links between orthogonally adjacent electrodes in a relatively small matrix of electrodes (see Figures 5 and 6, col 7, lines 60-65), which reiterates how the links can be of different lengths and still function properly.

Regarding claim 14, Schattschneider fails to teach that the apparatus has a biasing device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a biasing device since it is well known in the art that in

order for a circuit to work to its potential, there must be an initialization period to produce the correct settings. A bias can be used here to initialize the settings and keep the circuit in proper working order.

7. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schattschneider in view of Ojster (U.S. Patent No. 5,251,937). The teachings of Schattschneider are discussed above.

Regarding claim 4, Schattschneider fails to teach that at least two structures within a security element possess different application thicknesses.

Ojster teaches a multiplayer data carrier with a plane element with optically variable effects. In one embodiment, Ojster teaches that addition printed information 6 is disposed under the hologram and pressed into layers 20 and 18 bearing the hologram through the layer structure upon application of the OVD. Printed layer 6 consists of pigmented inks and preferably has a thickness of about 50 to 20 micrometers (see Figure 5, col 5, lines 10-15).

In view of the teaching of Ojster, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ different application thicknesses because since the conductivity will be varying, the thickness of the element must also vary since thickness influences how conductivity will behave (i.e. if something is thicker, it may not conduct as well). This is favorable because it enhances the security of the card by not having uniform patterns to interpret.

Regarding claim 7, Schattschneider fails to teach that the additionally applied electrically conductive structures are inks or dyes.

Ojster teaches a multiplayer data carrier with a plane element with optically variable effects. In one embodiment, Ojster teaches that addition printed information 6 is disposed under the hologram and pressed into layers 20 and 18 bearing the hologram through the layer structure upon application of the OVD. Printed layer 6 consists of pigmented inks and preferably has a thickness of about 50 to 20 micrometers (see Figure 5, col 5, lines 10-15).

In view of the teaching of Ojster, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use inks or dyes to apply the additional electrically conductive structures because the inks and dyes are versatile in the fact that they can be tailored to the particular hologram or element to which it is being applied and are permanent in their nature so there will be no need for re-application.

8. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schattschneider in view of Weber (U.S. Patent No. 4,255,652). The teachings of Schattschneider are discussed above.

Regarding claim 15, Schattschneider fails to teach that the shafts of the document transport rollers are connected to mass by sliding contacts.

Weber teaches a high speed electrically responsive indicia detecting apparatus and method that detects and provides a signal from detection indicia applied to a substrate such as a controlled document wherein the detection indicia may be invisible and has a resistivity which is substantially less than the substrate to which it is applied (see col 2, line 67 to col 3 line 3). The controlled document 1 is shown moving to the

left in the view as indicated by the arrow 3, being transported by the carrier or belt 10 which is preferably formed of insulating material (see Figure 3, col 5, lines 47-50). Further, as the belt 10 continues to move, it carries the controlled document 1 and its detection indicia stripe 2A into a second station which is called the detection or sensor station 11 (see Figure 3, col 6, lines 57-60). The movement of the belt is analogous to having sliding contacts so that the document can proceed to move.

In view of the teaching of Weber, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a belt to move a document around so that the scanner could be done in a smooth, efficient manner mechanically.

Regarding claim 16, Schattschneider fails to teach that the apparatus is arranged in high speed document processing machines.

Weber teaches that the invention is important over the prior art from the standpoint that the type of detection which has been mentioned above of worn and used controlled documents can be carried out at linear speeds of the order of 10 to 15 meters per second (see col 2, lines 49-58). This speed is analogous to the rate of high speed printers.

In view of the teaching of Weber, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a high speed printer rate so that the documents can be verified for security reasons quickly, and more verifications can be done, keeping counterfeit measures at a good rate.

Regarding claim 17, Schattschneider fails to teach that the apparatus is arranged in a manual apparatus.

Weber teaches that the controlled document 1 is shown moving to the left in the view as indicated by the arrow 3, being transported by the carrier or belt 10 which is preferably formed of insulating material (see Figure 3, col 5, lines 47-50). Further, as the belt 10 continues to move, it carries the controlled document 1 and its detection indicia stripe 2A into a second station which is called the detection or sensor station 11 (see Figure 3, col 6, lines 57-60). The arrangement of the belt and document mover is inferred to have manual options in order to move the document.

In view of the teaching of Weber, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a manual apparatus to the system as set forth by Schattschneider because it is well known in the art that mechanical machines malfunction at times, and it would be favorable to have a manual option so that the counterfeiting detection could proceed.

Regarding claim 18, Schattschneider as modified by Weber fails to teach a scanner with software.

It would have been obvious to one of ordinary skill in the art at the time the invention was made since it is well known in the art that for a scanner to function properly, there must be software to drive the mechanical apparatus to perform the scanning function, software must be included to run the programs.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ***Lisa M. Caputo*** whose telephone number is **(703) 308-8505**. The examiner can normally be reached between the hours of 7:30AM to 4:00PM Monday thru Friday.

The fax phone number for this Group is (703)308-7722, (703)308-7724, or (703)308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to **[lisa.caputo@uspto.gov]**.

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

LMC
December 28, 2001

KARL D. FRECH
PRIMARY EXAMINER